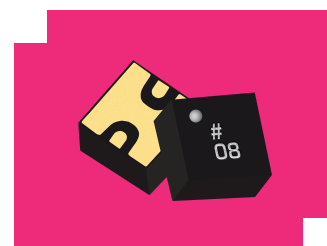


ATN10-0050CSP1 Chip Scale Package MMIC 50 GHz 10dB Attenuator

DEVICE OVERVIEW

General Description

The ATN10-0050CSP1 is a surface mount GaAs MMIC 10dB attenuator in a chip scale package (CSP). This attenuator is an ideal solution for attenuating a signal and can be used in a wide range of applications. The CSP allows for extreme miniaturization of SMT footprint while providing die-like performance. GaAs MMIC technology provides consistent unit-to-unit performance in a small, low-cost form factor. Compensates for high frequency board losses with a positive gain slope. A 50-ohm match is maintained over the entire operating frequency range.



[Download s-parameters here](#)

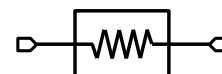
Features

- Small 1.5 x 1.5 mm package size
- 3dB attenuation from DC to 50 GHz
- 15dB typical return loss over operatingband
- 1W RF Power

Applications

- 5G
- Airborne Applications
- Test Equipment
- Amplitude Matching
- Precision Characterization
- High Channel Count Systems

Functional Block Diagram



Part Ordering Options

Part Number	Description	Package	Packing Size	Green Status	Product Lifecycle	Export Classification
ATN10-0050CSP1	Chip Scale Package MMIC 50 GHz 10dB Attenuator	CSP1	-	RoHS REACH	Released	EAR99
EVB-ATN10-0050	Evaluation Board, Chip Scale Package MMIC 50 GHz 10dB Attenuator	-	-	RoHS	Released	EAR99

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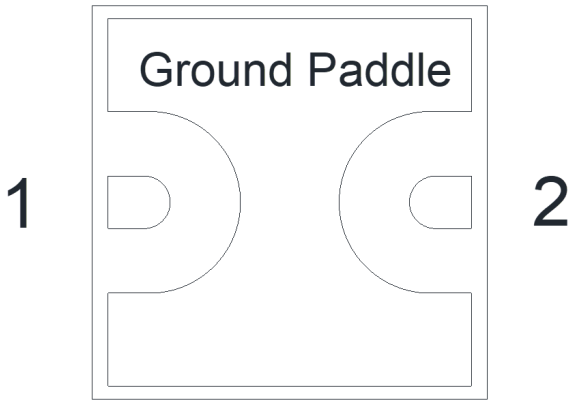
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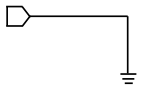
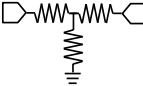
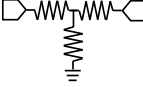
■ Footprint Image

Port Configuration and Functions

Port Diagram



Port Functions

Port	Function	Description	Equivalent Circuit for Package
Ground Paddle	Ground	CSP1 package ground path is provided through the ground paddle.	
Pin 1	Input/Output	Pin 1 and Pin 2 are DC connected to each other and ground through a T-network of resistors.	
Pin 2	Input/Output	Pin 1 and Pin 2 are DC connected to each other and ground through a T-network of resistors.	

Specifications

Absolute Maximum Ratings

The Absolute Maximum Ratings indicate limits beyond which damage may occur to the device. If these limits are exceeded, the device may be inoperable or have a reduced lifetime.

Parameter	Maximum Rating	Unit
Maximum Operating Temperature	100	°C
Maximum Storage Temperature	125	°C
Minimum Operating Temperature	-55	°C
Minimum Storage Temperature	-65	°C
RF Power Handling	1	W

Package Information

Parameter	Details	Rating
ESD	250 to < 500 Volts	HBM Class 1A
Dimensions	-	1.5 x 1.5 mm

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Chip Scale Package MMIC 50 GHz 10dB
Attenuator

Electrical Specifications

The electrical specifications apply at TA=+25°C in a 50Ω system. Typical data shown is for the attenuator in a CSP package with a sine wave input applied to port 1.

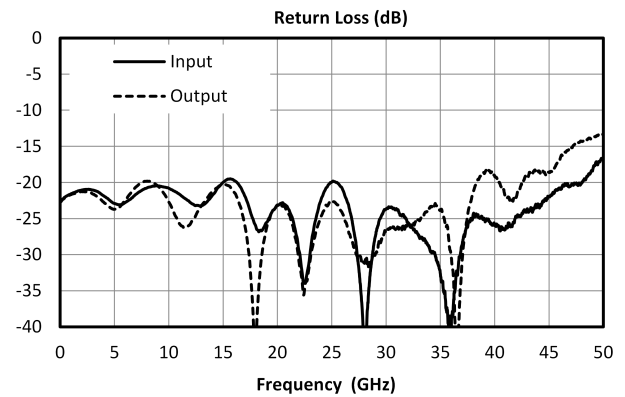
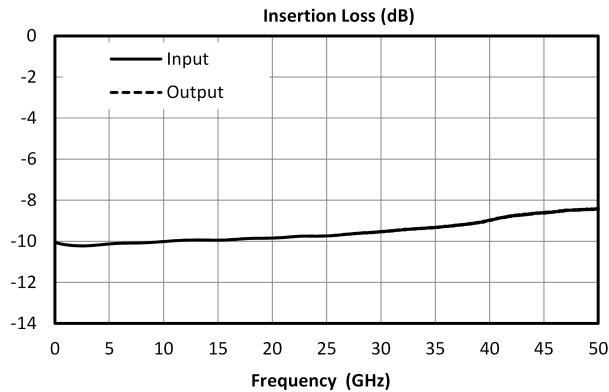
Parameter	Test Conditions	Minimum Frequency (GHz)	Maximum Frequency (GHz)	Min	Typ	Max	Unit
Attenuation	-	0	30	-	10	-	dB
Attenuation	-	30	50	-	9	-	dB
Return Loss	-	0	40	15	24	-	dB
Return Loss	-	40	50	-	18	-	dB

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Chip Scale Package MMIC 50 GHz 10dB Attenuator

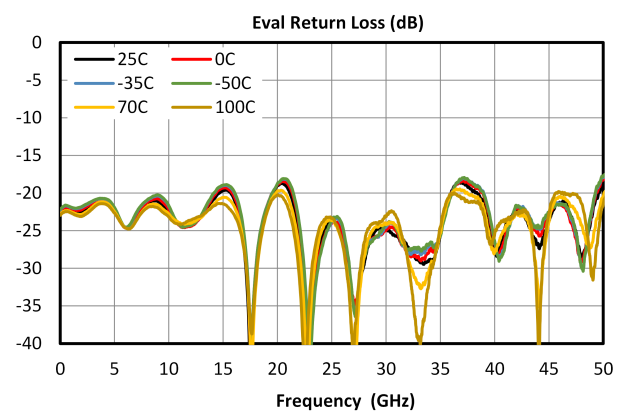
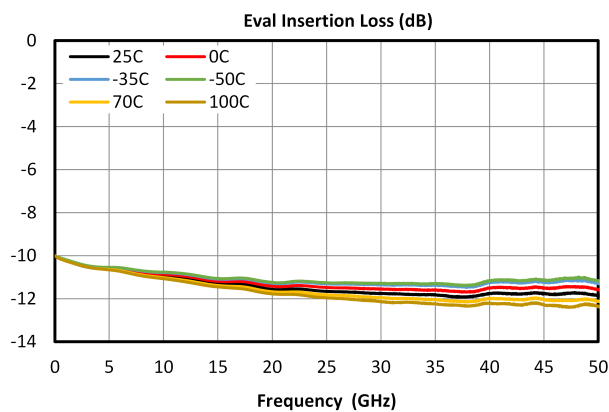
Typical Performance Plots

Electrical Performance Data is de-embedded to the CSP package ports



Electrical Performance Over Temperature

Evaluation board performance is shown as a proxy for device performance due to fixturing variability over temperature



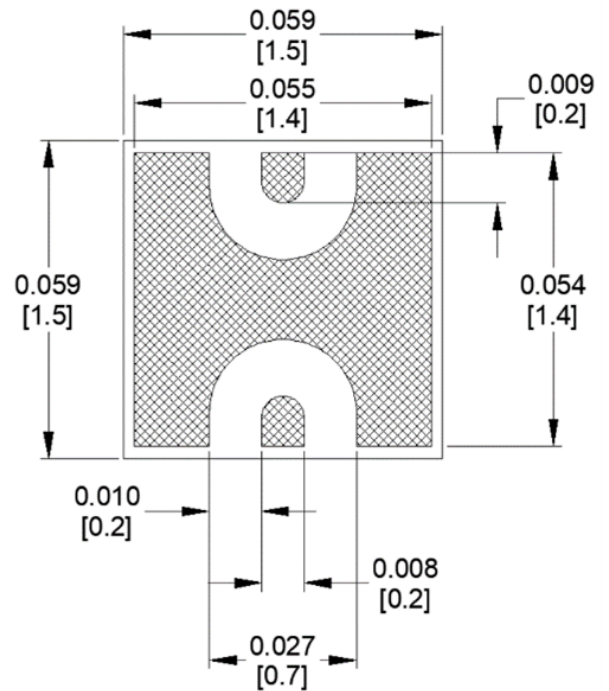
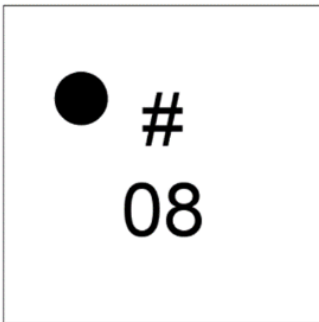
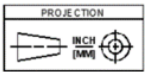
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Chip Scale Package MMIC 50 GHz 10dB
Attenuator

Mechanical Data

Outline Drawing

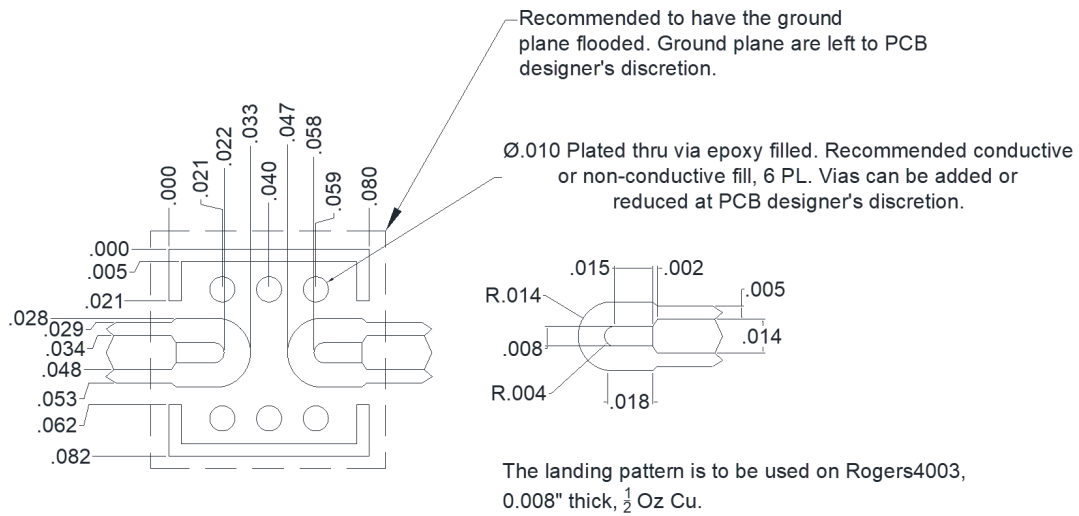
All measurements are typical



ATN10-0050CSP1

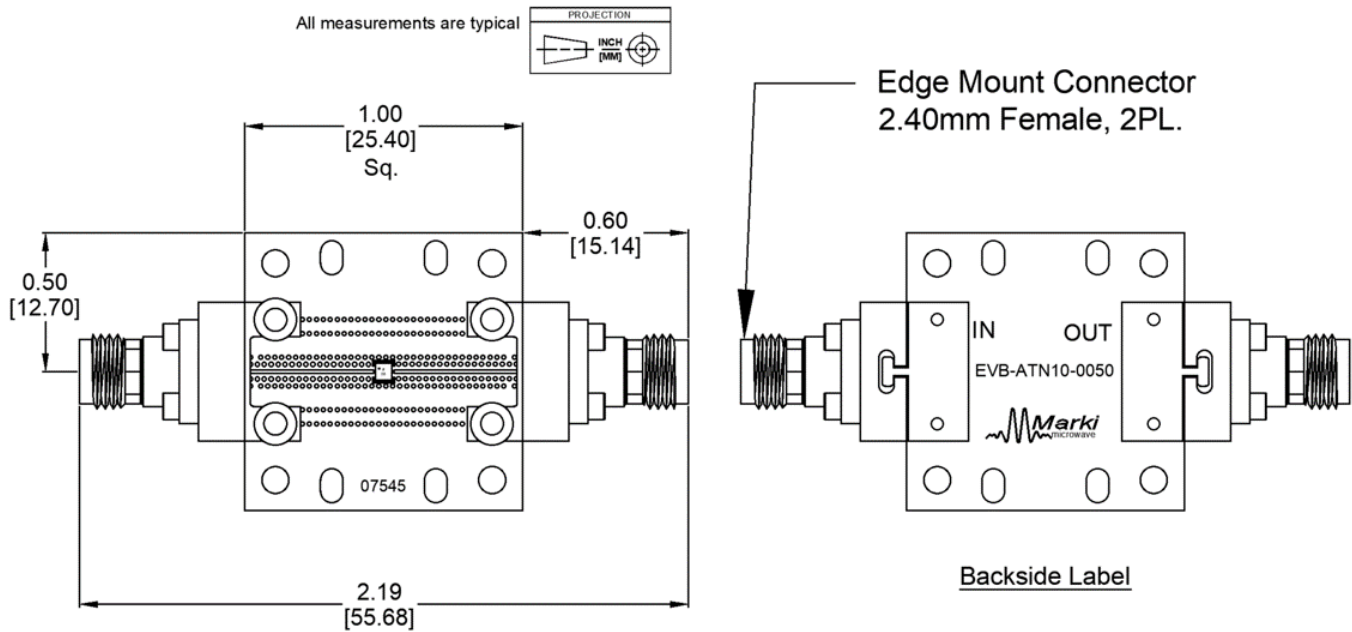
Chip Scale Package MMIC 50 GHz 10dB
Attenuator

Footprint Image



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Chip Scale Package MMIC 50 GHz 10dB
Attenuator



Unless otherwise specified, dimensions are in inches. Tolerances are:

.XX	±.02
.XXX	±.005

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